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Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	12	"3148222"	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2007/03/01 12:55
S2	94	570/101	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2007/03/01 13:00
S3	80	570/224	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2007/03/01 13:03
S4	124	570/243	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2007/03/01 13:03

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=> s oxychlorination  
L1        1240 OXYCHLORINATION

=> s olefins  
L2        103144 OLEFINS

=> s L1 and L2  
L3        55 L1 AND L2

=> s aromatics  
      9755 AROMATICS  
      1 AROMATICSES  
      9755 AROMATICS  
      (AROMATICS OR AROMATICSES)  
      16316 AROMS  
L4        23766 AROMATICS  
      (AROMATICS OR AROMS)

=> s L1 and L4  
L5        10 L1 AND L4

=> d L3 1-55 bib abs

L3 ANSWER 1 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:182817 CAPLUS  
DN 140:237528  
TI Catalytic oxychlorination of olefins and aromatics  
using a fluidized-bed reactor method  
IN Voigt, Andreas; Winter, Franz; Kozek, Martin  
PA Austria Wirtschaftsservice Gesellschaft m.b.H., Austria  
SO PCT Int. Appl., 33 pp.  
CODEN: PIXXD2  
DT Patent  
LA German  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004018395	A1	20040304	WO 2003-EP8846	20030808
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10238811	A1	20040318	DE 2002-10238811	20020823
	DE 10238811	B4	20060413		
	AU 2003260397	A1	20040311	AU 2003-260397	20030808
	EP 1530557	A1	20050518	EP 2003-792285	20030808
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	US 2006149102	A1	20060706	US 2005-525419	20050909
PRAI	DE 2002-10238811	A	20020823		
	WO 2003-EP8846	W	20030808		

OS CASREACT 140:237528

AB A method for continuous oxychlorination of olefins and aroms. (e.g., the conversion of ethylene into 1,2-dichloroethane) is described which comprises reacting olefins and aroms. as constituents (a) with oxygen and HCl(g) constituents (b) in the presence of a copper-salt catalyst (e.g., CuCl<sub>2</sub>-CuCl-CuO mixture) in a reactor. The constituents (a) and (b) are sep. introduced in the reaction zones and in the regeneration zones of the reactor. The reaction zone comprises a higher catalyst concentration in oxidized form when the solid matter is introduced than when it is extracted. The regeneration zone contains a higher catalyst concentration in reduced form when the solid matter is introduced than when it is extracted. The constituents (a) are set in the reaction zones and the constituents (b) in the regeneration zones; process flow diagrams are presented.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 2002:941485 CAPLUS  
DN 139:87410  
TI Adding value via alkane activation  
AU Morgan, Mark  
CS Nexant/Chem System, UK  
SO Hydrocarbon Engineering (2002), 7(10), 14-16, 20-21  
CODEN: HYENF5; ISSN: 1468-9340  
PB Palladian Publications Ltd.  
DT Journal; General Review  
LA English

AB A review. Although the Middle East has large natural gas reserves, a large proportion of the reserves are classified as "stranded gas" (meaning they have limited access to major gas-consuming countries). A variety of alkane activation processes were outlined for upgrading of C1-4-hydrocarbons, in order to manufacture more-valuable petrochemicals from inexpensive feedstocks. Processes discussed include: (1) methane reactions to di-Me ether, MeOH, NH<sub>3</sub>, methanol-to-olefins, and gas-to-liqs. technol., (2) ethane conversion to vinyl chloride monomer and acetic acid, (3) propane to acrylonitrile and acrylic acid, and (4) isobutane conversion to Me methacrylate.

L3 ANSWER 3 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1999:319871 CAPLUS

DN 130:313468

TI Catalysts for a fluidized-bed oxygen method for oxychlorination of hydrocarbons

IN Zhu, Hongfa; Yu, Jiangpeng; Liu, Lisheng

PA China, Ministry of Chemical Industry, Beijing Chemical Industry Institute, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 12 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1114594	A	19960110	CN 1994-107333	19940705
	CN 1045727	B	19991020		
PRAI	CN 1994-107333		19940705		

AB A catalyst with a phase structure of Cu<sub>2</sub>(OH)<sub>3</sub>Cl·γ-Al<sub>2</sub>O<sub>3</sub> (containing 10-13% Cu) for oxychlorination of olefins is prepared by neutralizing an HCl-Cu chloride solution with an Na metaluminate solution to form a gel, forming a slurry and spray molding, washing with alkali solns., and calcining. The catalysts are noncorrosive and have a good fluidized state. During the oxychlorination of ethylene, the conversion of HCl is >99.3% and purity of C<sub>2</sub>H<sub>4</sub>Cl<sub>2</sub> is >98.5%.

L3 ANSWER 4 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1996:149026 CAPLUS

DN 124:288527

TI Influence of the composition of the CsCl-CuCl<sub>2</sub>/SiO<sub>2</sub> system on its catalytic properties in the reaction of additive oxychlorination of olefins

AU Dmitrieva, M. P.; Bakshi, Yu. M.; Gel'bshtein, A. I.

CS State Scientific Center Russian Federation, Karpov Inst. Physical Chem., Moscow, 103064, Russia

SO Kinetics and Catalysis (Translation of Kinetika i Kataliz) (1996), 37(1), 79-83

CODEN: KICAA8; ISSN: 0023-1584

PB MAIK Nauka/Interperiodica

DT Journal

LA English

AB The influence of the CsCl-CuCl<sub>2</sub>/SiO<sub>2</sub> catalyst composition on the kinetic parameters of sep. stages of the reaction of additive oxychlorination of ethylene was studied by the pulse microcatalytic method. The CsCl additive was found to decrease the rate consts. of stages of reduction and reoxidn. of the catalyst with olefin and oxygen, resp., as the result of a diminution of the preexponential factors. Al<sub>2</sub>O<sub>3</sub>, which is present in KSM silica gel as a hardening additive, was found to increase the catalyst activity due to a decrease in activation energy of the major reaction stages.

L3 ANSWER 5 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:292607 CAPLUS

DN 122:113541

TI Oxychlorination and combustion of propene on fly-ash. Formation of chlorinated benzenes, dibenzodioxines and mono- and dibenzofurans  
 AU Jarmohamed, W.; Mulder, P.  
 CS Cent. Chem. Environ., Leiden Univ., Leiden, 2300 RA, Neth.  
 SO Chemosphere (1994), 29(9-11), 1911-17  
 CODEN: CMSHAF; ISSN: 0045-6535  
 PB Elsevier  
 DT Journal  
 LA English  
 AB Heterogeneous gas phase reactions of propene on fly ash in the presence of HCl and air between 300-580° have been investigated. Under mild conditions, only the formation of polychlorinated C1, C2 and C3 species takes place. At the high temperature end of this study, substantial amts. of polychlorinated benzenes, dibenzodioxines and mono- and dibenzofurans were observed. This is in contrast with similar expts. using ethene instead of propene. Clearly, fly ash behaves not only as a potent catalyst for deep oxidation and chlorination, but accelerates condensation reactions of simple short chain olefins. Under comparable conditions but in the absence of a fly ash bed, a low degree of homogeneous propene oxidation was observed at 590°.

L3 ANSWER 6 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1994:586286 CAPLUS  
 DN 121:186286  
 TI Oxychlorination and combustion of propene on fly-ash. Formation of chlorinated benzenes, dibenzodioxins and dibenzofurans  
 AU Mulder, Peter; Jarmohamed, Wariesja  
 CS Center for Chemistry and the Environment, Leiden Institute of Chemistry, Leiden, 2300 RA, Neth.  
 SO Organohalogen Compounds (1993), 11(Dioxin '93, 13th International Symposium on Chlorinated Dioxins and Related Compounds, 1993), 273-6  
 CODEN: ORCOEP; ISSN: 1026-4892  
 DT Journal  
 LA English  
 AB Heterogeneous reactions of propene on fly-ash in the presence of air and HCl at 300-580° were investigated. At mild conditions, the formation of polychlorinated C1, C2, and C3 species was noticed. At high temps., substantial amts. of polychlorinated benzenes, dibenzodioxins and mono- and dibenzofurans was observed. This is in contrast with similar expts. using ethene instead of propene. Clearly fly ash behaves not only as a potent catalyst for deep oxidation and chlorination, but accelerates condensation reactions of simple short chain olefins.

L3 ANSWER 7 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1994:111514 CAPLUS  
 DN 120:111514  
 TI Oxychlorination catalyst, process for preparing the catalyst and method of oxychlorination with use of the catalyst  
 IN Komatsu, Masashi; Yamamoto, Michio; Ishino, Masaru; Suzukamo, Gohfu  
 PA Sumitomo Chemical Co., Ltd., Japan  
 SO Eur. Pat. Appl., 9 pp.  
 CODEN: EPXXDW

DT Patent  
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 577059	A1	19940105	EP 1993-110329	19930629
	EP 577059	B1	19970924		
	R: CH, DE, FR, GB, IT, LI, NL				
	JP 06009445	A	19940118	JP 1992-172465	19920630
	JP 3092330	B2	20000925		
	US 5334789	A	19940802	US 1993-83502	19930630
PRAI	JP 1992-172465	A	19920630		
AB	The title catalyst comprises a porous support, and a Pd compound, a Cu				

compound and a V compound, optionally with alkaline earth metal compd.loaded on the support. Aromatic hydrocarbons or olefins are oxychlorinated over the catalyst at a mol ratio of the feeds/HCl/O<sub>2</sub> of 1:(0.1-10):(0.05-5). In one embodiment, the catalyst is calcined in an O<sub>2</sub>-containing gas or N atmospheric at 200-700° before oxychlorination reaction.

L3 ANSWER 8 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1993:430508 CAPLUS

DN 119:30508

TI Reactor and process for heterogeneous catalytic reactions

IN Ruppel, Wilhelm; Thomas, Hans Richard; Boeck, Stefan; Herzog, Klaus; Resch, Peter; Plueckhan, Juergen; Mross, Wolf Dieter

PA BASF A.-G., Germany

SO Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 534195	A1	19930331	EP 1992-115129	19920904
	EP 534195	B1	19950823		
	R: BE, DE, ES, FR, GB, IT, NL				
	DE 4131446	A1	19930609	DE 1991-4131446	19910921
	ES 2075552	T3	19951001	ES 1992-115129	19920904
	JP 05261272	A	19931012	JP 1992-249167	19920918
PRAI	DE 1991-4131446	A	19910921		

AB A reaction mixture is passed through a loose catalyst layer radially to the reactor axis and preferably in the centripetal direction. A heat exchanger of wound tubes is located in the catalyst layer, and a heat-transfer medium is run through the heat-exchanger tubes for the removal of the reaction heat. The reactor is used for the preparation of various compds., such as ethylene oxide from C<sub>2</sub>H<sub>4</sub> and O, acrylic acid from acrolein, MeOH from the synthesis gas, and methylamines from MeOH and NH<sub>3</sub>.

L3 ANSWER 9 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1992:83055 CAPLUS

DN 116:83055

TI Mechanism and kinetics of substitutive oxychlorination of olefins. I. Effect of the composition of palladium-copper salt catalyst with silica support on the character of propylene conversion

AU Bakshi, Yu. M.; Gel'perin, E. I.; Dmitrieva, M. P.; Gel'bshtein, A. I.

CS NIFiz.-Khim. Inst. im. Karpova, Moscow, USSR

SO Kinetika i Kataliz (1991), 32(6), 1412-18

CODEN: KNKTA4; ISSN: 0453-8811

DT Journal

LA Russian

AB 3-Chloropropene and 1,2-dichloropropane (I and II, resp.) were the major oxychlorination reaction products derived from propene/HCl/O<sub>2</sub> mixts. with catalysts MCl/PdCl<sub>2</sub>/CuCl<sub>2</sub>/SiO<sub>2</sub> (M = alkali metal). Effect of catalyst composition on the rate of formation of I and II and on the stationary catalytic states was considered. Addition of MCl to PdCl<sub>2</sub>/CuCl<sub>2</sub> increases catalytic activity; however the rate of I formation increases in the series M = K < Na < Li, while the rate of II formation decreases in the same series. Opposite tendencies in M for I and II formation were also observed for the rate of catalyst reoxidn. with O<sub>2</sub>.

L3 ANSWER 10 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:582329 CAPLUS

DN 115:182329

TI Study of mechanism and kinetics of additive oxychlorination of olefins. V. Kinetic model of the reaction

AU Bakshi, Yu. M.; Gel'bshtein, A. I.; Gel'perin, E. I.; Dmitrieva, M. P.; Zyskin, A. G.; Snagovskii, Yu. S.

CS Nauchno-Issled. Fiz.-Khim. Inst., Moscow, USSR  
SO Kinetika i Kataliz (1991), 32(3), 740-8  
CODEN: KNKTA4; ISSN: 0453-8811

DT Journal  
LA Russian

AB A kinetic model of the title reaction was developed which yielded parameters for individual steps that were close to those obtained when the individual steps were studied by themselves. The model was verified for the case of C<sub>2</sub>H<sub>4</sub> on an industrial catalyst.

L3 ANSWER 11 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1991:246556 CAPLUS

DN 114:246556

TI Study of the mechanism and kinetics of additive oxychlorination of olefins. IV. Effect of the composition of a copper-containing salt catalyst with a  $\gamma$ -aluminum oxide support on kinetic parameters of individual reaction stages

AU Dmitrieva, M. P.; Bakshi, Yu. M.; Gel'bshtein, A. I.

CS Nauchno-Issled. Fiz.-Khim. Inst. im. Karpova, Moscow, USSR

SO Kinetika i Kataliz (1991), 32(1), 85-91

CODEN: KNKTA4; ISSN: 0453-8811

DT Journal

LA Russian

AB The chlorination of C<sub>2</sub>H<sub>4</sub> by HCl + O<sub>2</sub> was studied with the following Al<sub>2</sub>O<sub>3</sub>-supported catalyst systems: CuCl<sub>2</sub>-HCl, CuCl<sub>2</sub>-KCl-HCl, CuCl<sub>2</sub>-LaCl<sub>3</sub>-HCl, CuCl<sub>2</sub>-AlCl<sub>3</sub>-HCl. The metal chloride additives lowered the rate constant for reduction of the CuCl<sub>2</sub> by the olefin and increased that for reoxidn. of the catalyst by O<sub>2</sub>. LaCl<sub>3</sub>, AlCl<sub>3</sub>, and small amts. of KCl increased the amount of surface Cu. The effects of Al<sub>2</sub>O<sub>3</sub> and HCl were discussed.

L3 ANSWER 12 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1990:159166 CAPLUS

DN 112:159166

TI Regeneration of alumina-supported nickel-chlorine catalysts for dimerization of olefins

IN Hugues, Francois; Commereuc, Dominique; Chauvin, Yves; Saussine, Lucien; Bournonville, Jean Paul

PA Institut Francais du Petrole, Fr.

SO Eur. Pat. Appl., 6 pp.

CODEN: EPXXDW

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 346184	A1	19891213	EP 1989-401471	19890530
	EP 346184	B1	19911204		
	R: BE, DE, GB, IT, NL				
	FR 2632212	A1	19891208	FR 1988-7599	19880606
	FR 2632212	B1	19900914		
PRAI	FR 1988-7599	A	19880606		

OS CASREACT 112:159166

AB In the title process, which does not decrease catalyst activity, the catalysts are dried in gases containing O or inert gases at 5-70°, calcined in nonreducing atms. at 300-800°, heated in oxychlorinating atms. at 25-750°, and calcined in nonreducing atms. at 300-800°. A used catalyst containing 4.0% Ni and 2.27% Cl on alumina spheres, giving a conversion of 97.5% and a selectivity of 80% in dimerizing C<sub>3</sub>H<sub>6</sub> when fresh, was dried in air at 20°, calcined in air at 500° for 3 h, heated in air containing 2.1% (based on catalyst) CCl<sub>4</sub> at 400° for 100 min, and calcined in air at 500° for 3 h. The catalyst then gave a 97.4% conversion and 80% selectivity in dimerizing C<sub>3</sub>H<sub>6</sub>; vs. a conversion of 87% without the oxychlorination and 2nd calcination.

L3 ANSWER 13 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1984:517562 CAPLUS  
 DN 101:117562  
 TI Fixed bed catalyst for oxychlorination  
 IN Convers, Ronald J.; Owens, Robert M.  
 PA Conoco, Inc., USA  
 SO U.S., 11 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4460699	A	19840717	US 1982-405133	19820804
PRAI	US 1982-405133		19820804		
OS	MARPAT 101:117562				

AB A fixed bed catalyst is described for the oxychlorination of ethene,  $\alpha$ -olefins, and aroms. This catalyst has an impeded center which excludes reactants, or prevents products from forming in the interior of the catalyst. The impeded center may be made inaccessible or it may be inert to reaction. Thin layers of high sp. surface area carrier material cover the outer surface of the impeded center. An agent capable of catalyzing oxychlorination reactions is added to the layered catalytic carrier material.

L3 ANSWER 14 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1984:191080 CAPLUS  
 DN 100:191080  
 TI Mechanism and kinetics of the additive oxychlorination of olefins. I. Reaction of ethylene on a copper(II) chloride-potassium chloride-silicon dioxide catalyst  
 AU Bakshi, Yu. M.; Dmitrieva, M. P.; Gel'bshtein, A. I.  
 CS Nauchno-Issled. Fiz.-Khim. Inst. im. Karpova, Moscow, USSR  
 SO Kinetika i Kataliz (1984), 25(1), 136-41  
 CODEN: KNKTA4; ISSN: 0453-8811  
 DT Journal  
 LA Russian

AB The reaction  $C_2H_4 + 2HCl + 0.5O_2 \rightarrow C_2H_4Cl + H_2O$  on the title catalyst was shown to proceed by a stepwise oxidation-reduction mechanism. The kinetics of reduction of the catalyst by  $C_2H_4$  and of its reoxidn. by  $O_2$  were studied. The kinetic parameters obtained under steady-state and nonsteady-state catalysis conditions agreed.

L3 ANSWER 15 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1979:507651 CAPLUS  
 DN 91:107651  
 TI Monohalogenated olefins  
 IN Li, Tao Ping  
 PA Monsanto Co., USA  
 SO Ger. Offen., 39 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2852036	A1	19790613	DE 1978-2852036	19781201
	US 4300005	A	19811110	US 1977-856889	19771202
	FR 2410637	A1	19790629	FR 1978-33826	19781130
	FR 2410637	B1	19831216		
	GB 2009164	A	19790613	GB 1978-46846	19781201
	GB 2009164	B	19820902		
	JP 54084507	A	19790705	JP 1978-148970	19781201
	BR 7807939	A	19790731	BR 1978-7939	19781201



PRAI US 1977-856889 A 19771202

AB Monohalogenated olefins were prepared by treating a C2-4 alkane or C2-6 unsatd. hydrocarbon or haloalkane with HX (X = halo) and an O2 source in the presence of a catalyst containing a Cu halide and alkali phosphate, optionally also. a Group I or II metal halide and a Pt family halide, on an inorg. carrier. Thus, calcined Al2O3 impregnated with H2PtCl6 in H2O and LiCl and CuCl2 in MeOH was dried 2 h at 110°, treated with N2 6 h at 400°, mixed with K3PO4 in H2O, and dried 3 h in air at 400°. Ethane, HCl, and air (1:1:4.76) was passed through this catalyst at 550° to give 62.8% HCl conversion, H2C:CHCl (77.1% yield ethane basis), EtCl (11.1% yield ethane basis), and smaller amts. of Cl2C:CCl2, Cl2C:CHCl, 1,1- and 1,2-dichloroethane, CHCl3, and other chlorocarbons.

L3 ANSWER 16 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1979:203467 CAPLUS  
DN 90:203467  
TI Monohalogenated olefinic compounds by oxyhalogenation  
IN Scott, John David  
PA Imperial Chemical Industries Ltd., UK  
SO Ger. Offen., 13 pp.  
CODEN: GWXXBX

DT Patent  
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	DE 2837514	A1	19790315	DE 1978-2837514	19780828
	GB 2003740	A	19790321	GB 1978-33505	19780816
	GB 2003740	B	19820407		
	ZA 7804827	A	19790829	ZA 1978-4827	19780824
	AU 7839368	A	19800306	AU 1978-39368	19780830
	AU 521294	B2	19820325		
	NL 7808938	A	19790308	NL 1978-8938	19780831
	CA 1116587	A1	19820119	CA 1978-310423	19780831
	FR 2401891	A1	19790330	FR 1978-25488	19780905
	JP 54055505	A	19790502	JP 1978-108686	19780906
PRAI	GB 1977-37132	A	19770906		

AB Olefins were monohalogenated by oxyhalogenation over supported catalysts containing a Pd compound, a Cu compound, an Fe compound and an alkali metal compound, optionally with a rare earth compound addnl. Thus, oxychlorination of C2H4 over an  $\alpha$ -Al2O3 catalyst impregnated with PdCl2, CuCl2, FeCl3, CeCl3 and NaCl in an atomic ratio of 1:2:5:6:19 of Pd, Cu, Fe, Ce and Na gave 91.6% conversion of C2H4 with 57.5% selectivity to CH2:CHCl.

L3 ANSWER 17 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1978:6258 CAPLUS  
DN 88:6258  
TI Halogenation of olefins. III. Factors affecting the oxychlorination of ethylene in a fluidized bed  
AU Espada Recarey, L.  
CS Dep. Quim., Esc. Tec. Super. Ing. Ind., Vigo, Spain  
SO Acta Cientifica Compostelana (1977), 14(1), 11-28  
CODEN: ACCCAW; ISSN: 0567-7378

DT Journal  
LA Spanish

AB The chlorination of C2H4 with excess HCl and O over a fluidized  $\gamma$ -Al2O3 catalyst, impregnated with Cu2+ or K+, favors formation of ClCH2CH2Cl at .apprx.350° and Cl2CHCH2Cl (I) at .apprx.480°. The formation of I was also favored by the use of large amts. HCl and O, but this also resulted in oxidation of C2H4. Other optimal reaction conditions are described.

L3 ANSWER 18 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1977:139324 CAPLUS  
 DN 86:139324  
 TI Halogenation of olefins. II. Characteristics of the  
 oxychlorination of ethylene in a fixed bed  
 AU Espada Recarey, L.  
 CS Esc. Tec. Super. Ing. Ind., Barcelona, Spain  
 SO Ion (Madrid) (1976), 36(423), 595-600  
 CODEN: IONMAH; ISSN: 0375-9091  
 DT Journal  
 LA Spanish  
 AB The oxychlorination of C<sub>2</sub>H<sub>4</sub> to give mainly ClCH<sub>2</sub>CH<sub>2</sub>Cl, C<sub>2</sub>HCl<sub>3</sub>,  
 and C<sub>2</sub>Cl<sub>4</sub> was carried out by passing a mixture of C<sub>2</sub>H<sub>4</sub>, HCl, and O over a  
 CuCl<sub>2</sub> catalyst dispersed on graphite in a fixed reactor at  
 300-400°C. The CuCl<sub>2</sub> was regenerated by oxidation. The  
 oxychlorination rate depends on the partial pressure of C<sub>2</sub>H<sub>4</sub> and O  
 and is independent of the HCl partial pressure.

L3 ANSWER 19 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1976:136278 CAPLUS  
 DN 84:136278  
 TI Chlorinated ethylene derivatives  
 IN Eden, Jamal S.  
 PA Goodrich, B. F., Co., USA  
 SO Ger. Offen., 24 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN: CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2532077	A1	19760205	DE 1975-2532077	19750717
	CA 1042924	A1	19781121	CA 1975-225461	19750425
	AU 7580762	A	19761104	AU 1975-80762	19750502
	ES 437928	A1	19770101	ES 1975-437928	19750526
	JP 51013706	A	19760203	JP 1975-64443	19750530
	JP 59010330	B	19840308		
	NL 7507662	A	19760126	NL 1975-7662	19750627
	FR 2279703	A1	19760220	FR 1975-22385	19750717
	FR 2279703	B1	19790824		
	NO 7502588	A	19760123	NO 1975-2588	19750721
	NO 145054	B	19810921		
	NO 145054	C	19820104		
	SE 7508286	A	19760123	SE 1975-8286	19750721
	SE 425308	B	19820920		
	SE 425308	C	19821230		
	BE 831589	A1	19751117	BE 1975-158482	19750722
PRAI	US 1974-490512	A	19740722		

AB In the manufacture of chloroolefins, particularly vinyl chloride, by  
 oxyhydrochlorination of C<sub>2</sub>H<sub>4</sub> or chlorinated derivs., efficiency of Cl and  
 energy utilization is increased by passing undesired chlorinated  
 byproducts and air over a catalyst containing 10-50% Cr<sub>2</sub>O<sub>3</sub> [1308-38-9] and  
 90-50% Al<sub>2</sub>O<sub>3</sub> [1344-28-1] and/or SiO<sub>2</sub> at 300-450°, giving  
 recycleable HCl [7647-01-0] essentially free of Cl and chlorohydrocarbons.  
 Thus, a synthetic mixture of trans-ClCH:CHCl 0.014, MeCHCl<sub>2</sub> 0.0688, MeCCl<sub>3</sub>  
 0.0102, CCl<sub>4</sub> 0.0088, C<sub>2</sub>HCl<sub>3</sub> 0.0052, ClCH<sub>2</sub>CHCl<sub>2</sub> 0.051, and C<sub>2</sub>Cl<sub>4</sub> 0.0041  
 mmole/min is passed with 5.24 l. air/hr over a 1:4 Cr<sub>2</sub>O<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub> catalyst  
 (surface area 220 M<sup>2</sup>/g) at 350° and contact time 18 sec to give  
 conversions of 21.4, 100, 50, 100, 100, 100, 100, 86.5, 100, and 100%,  
 resp.; while at 375° all conversions are 100%, giving a mixture of O  
 8.64, N 60.69, CO 7.57, CO<sub>2</sub> 4.8, HCl 13.61, H<sub>2</sub>O 5.18%, and a trace of Cl.

L3 ANSWER 20 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1975:433404 CAPLUS  
 DN 83:33404  
 TI Fluidized bed oxyhalogenation catalysts

IN Joseph, Jacques  
 PA Rhone-Progil, Fr.  
 SO Ger. Offen., 12 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2442182	A1	19750327	DE 1974-2442182	19740903
	DE 2442182	B2	19760616		
	DE 2442182	C3	19770210		
	FR 2242143	A1	19750328	FR 1973-31837	19730904
	FR 2242143	B1	19780324		
	GB 1474258	A	19770518	GB 1974-38272	19740902
	BE 819480	A1	19750303	BE 1974-148159	19740903
	NO 7403162	A	19750305	NO 1974-3162	19740903
	NO 141358	B	19791119		
	NO 141358	C	19800227		
	NL 7411646	A	19750306	NL 1974-11646	19740903
	NL 189855	B	19930316		
	NL 189855	C	19930816		
	DK 7404648	A	19750505	DK 1974-4648	19740903
	DK 151007	B	19871012		
	DK 151007	C	19880229		
	JP 50070306	A	19750611	JP 1974-101277	19740903
	BR 7407330	D0	19750701	BR 1974-7330	19740903
	AU 7472934	A	19760311	AU 1974-72934	19740903
	IN 143087	A1	19771001	IN 1974-CA1973	19740903
	IT 1019186	B	19771110	IT 1974-52860	19740903
	RO 72689	A1	19810330	RO 1974-79903	19740903
	ES 429752	A1	19761101	ES 1974-429752	19740904
PRAI	FR 1973-31837	A	19730904		

AB Fluidized bed catalysts for the oxyhalogenation of olefins consist of a mixture of 5-50% catalyst particles with 95-50% microshot of glass,  $\alpha$ -alumina, and(or) silicic acid or quartz as a dilution agent. The dilution agent is chemical and catalytically inert and does not act as a catalyst carrier. The use of the dilution agent reduced the dust, the caking of the fine catalyst particles, the consumption of the catalyst particles, and the temperature difference between the lower and upper parts of the fluidized bed and allowed regulation of the reactivity of the catalyst material.

L3 ANSWER 21 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1974:145368 CAPLUS  
 DN 80:145368  
 TI Unsaturated chlorides  
 IN Takashima, Hiroaki; Fujimoto, Kaoru; Kunugi, Taiseiki  
 SO Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 49001504	A	19740108	JP 1972-44653	19720508
PRAI	JP 1972-44653	A	19720508		

AB The oxychlorination of C3-6 olefins was carried out in the presence of Rh (or Pd, Pt, Ir) or its chloride supported on activated C, SiO<sub>2</sub>, or Al<sub>2</sub>O<sub>3</sub>. Thus, C<sub>3</sub>H<sub>6</sub> reacted with O, HCl, and steam to give mostly CH<sub>2</sub>:CHCH<sub>2</sub>Cl and some Me<sub>2</sub>CHCl.

L3 ANSWER 22 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1973:83745 CAPLUS  
 DN 78:83745

TI Selective oxidation of olefins over noble metal catalysts. II.  
 Oxychlorination of propylene over platinum group metal catalysts  
 AU Takashima, Hiroaki; Fujimoto, Kaoru; Kunugi, Taisei  
 CS Fac. Eng., Univ. Tokyo, Tokyo, Japan  
 SO Nippon Kagaku Kaishi (1972), (12), 2297-302  
 CODEN: NKAKB8; ISSN: 0369-4577  
 DT Journal  
 LA Japanese  
 AB Oxychlorination of C<sub>3</sub>H<sub>6</sub> over supported noble metal catalysts at 200° gave chiefly CH<sub>2</sub>:CHCH<sub>2</sub>Cl (I), best results being obtained with Pt metals. Effects of reaction conditions were studied with a Pd-C catalyst. The major by-product was Me<sub>2</sub>CHCl at lower temps. and CO<sub>2</sub> at higher temps. Dependence of rates of I formation on temperature and partial pressures of C<sub>3</sub>H<sub>6</sub> and O was linear. A mechanism was given.

L3 ANSWER 23 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1972:518817 CAPLUS  
 DN 77:118817  
 TI Catalysts  
 IN Foucher, Walter D., Jr.; Norman, Thomas W.  
 PA Texaco Inc.  
 SO U.S., 3 pp.  
 CODEN: USXXAM

DT Patent  
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3681260	A	19720801	US 1968-787264	19681226
PRAI	US 1968-787264	A	19681226		

AB A catalyst was prepared from a support and an active layer of a crystalline material having a composition expressed in terms of oxides as follows: (CuO)<sub>x</sub>-(Al<sub>2</sub>O<sub>3</sub>)<sub>y</sub>.nH<sub>2</sub>O where x = 1-3 and y = 1-4. The catalyst was prepared by bringing into contact a support from a source of Al, a base, a source of Cu, and an ammoniacal reagent where the reagent and Cu are present in the ratio NH<sub>3</sub>:Cu ≥ 4. The catalyst finds application in such processes as the oxidation of olefins, incorporation into catalytic mufflers for the oxidation of exhaust gases, inoxyhalogenation reactions, and the conversion of SO<sub>2</sub> to SO<sub>3</sub> in flue gases. Thus, 75 ml of aqueous NH<sub>3</sub> and chips of 99.99% Al were heated on a steam plate. Sufficient NaOH was dissolved in the solution until a moderately active reaction with the Al chips started, resulting in the total dissoln. of the Al. CuSO<sub>4</sub> was subsequently added to the heated solution and a light blue smooth adherent coating appeared on the walls of the reaction container. Filtration of the solution yielded a dark blue solution which continued to coat container for several hr. The coating was analyzed by x-ray diffraction and exhibited major lines at 7.7 and 2.23.

L3 ANSWER 24 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1972:489082 CAPLUS  
 DN 77:89082  
 TI Catalyst system for selectively preparing monohalogenated olefins  
 IN Dugan, John J.  
 PA Esso Research and Engineering Co.  
 SO U.S., 8 pp.  
 CODEN: USXXAM

DT Patent  
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3670037	A	19720613	US 1969-800713	19690219
PRAI	US 1969-800713	A	19690219		

AB Vinyl chloride (I) [75-01-4] was prepared by heating a mixture of ethylene(II), HCl, and O at 500-550 deg.F in the presence of a mixture of

palladium chloride [7647-10-1], ferric chloride [7705-08-0], and Na chloride [7647-14-5] or K chloride [7447-40-7]. Thus, a 1:3:1 II-HCl-O mixture was heated at 550.deg.F in the presence of a catalyst containing a

1:1:1

Pd-Fe-Na mixture on Al<sub>2</sub>O<sub>3</sub>, which had been heated at 500.deg.F for 2-3 hr. I having 60.2 mole % selectivity was formed at 88.1% II conversion.

L3 ANSWER 25 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1972:85366 CAPLUS

DN 76:85366

TI Oxychlorination of lower olefins

IN Munemura, Ryo; Fujimoto, Norikuni

PA Central Glass Co., Ltd.

SO Jpn. Tokkyo Koho, 2 pp.

CODEN: JAXXAD

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 47001449	B4	19720114	JP	19660516
AB	Lower olefins were oxychlorinated with HCl and O using a mixture of CuCl <sub>2</sub> and polyphosphate as catalyst. Thus, CuCl <sub>2</sub> and polyphosphate carrier on diatomaceous earth was placed in a glass tube and a mixture of ethylene, HCl, and air introduced at 300° to give 1,2-dichloroethane.				

L3 ANSWER 26 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1972:45706 CAPLUS

DN 76:45706

TI Oxychlorination of lower olefins

IN Munemura, Ryo; Matsuo, Hiroe

PA Central Glass Co., Ltd.

SO Jpn. Tokkyo Koho, 3 pp.

CODEN: JAXXAD

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 46040252	B4	19711127	JP	19670606
AB	Lower olefins were oxychlorinated with HCl and O using a catalyst prepared by heating CuCl <sub>2</sub> with polyphosphate. Thus, CuCl <sub>2</sub> and Na metaphosphate were adsorbed on Al <sub>2</sub> O <sub>3</sub> , the mixture dried and heated 5 hr at 500°, the resulting catalyst placed in a stainless tube, and C <sub>2</sub> H <sub>4</sub> -HCl-air introduced at 290° to give 1,2-dichloroethane.				

L3 ANSWER 27 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1971:448392 CAPLUS

DN 75:48392

TI Oxychlorination catalysts

IN Rusu, Ana; Musca, Gavril; Oprescu, Ion; Vlad, Virginia

PA Romania, Institute "Petrochim"

SO Rom., 3 pp.

CODEN: RUXXA3

DT Patent

LA Romanian

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	RO 52514		19710206	RO	19690310
AB	To prepare the title compds. useful for oxychlorination of olefins, an alumina support obtained by heating alumina hydrate, precipitated from an Al(NO <sub>3</sub> ) <sub>3</sub> solution With NH <sub>4</sub> OH is impregnated a solution of CuCl <sub>2</sub> .2H <sub>2</sub> O in water and 35% HCl, and the resulting catalyst is dried and				

calcined at 450°.

L3 ANSWER 28 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1970:403384 CAPLUS  
DN 73:3384  
TI Oxychlorination of the lower olefins  
AU Todo, Naoyuki  
CS Tokyo Govt. Chem. Ind. Res. Inst., Tokyo, Japan  
SO Sekiyu Gakkaishi (1970), 13(1), 12-16  
CODEN: SKGSAE; ISSN: 0582-4664  
DT Journal; General Review  
LA Japanese  
AB The oxychlorination of ethylene, propylene, and butadiene are reviewed. 22 refs.

L3 ANSWER 29 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1970:115189 CAPLUS  
DN 72:115189  
TI Mechanism of the action of multicomponent metal complex catalysts in solutions  
AU Temkin, O. N.; Kaliya, O. L.; Shestakov, G. K.; Flid, R. M.  
CS USSR  
SO Doklady Akademii Nauk SSSR (1970), 190(2), 398-401 [Phys Chem]  
CODEN: DANKAS; ISSN: 0002-3264  
DT Journal  
LA Russian  
AB Literature data were critical reviewed concerning the action mechanisms of multicomponent metal complex catalysts in reactions involving olefins, aromatic compds., and acetylene. The additive, the substrate activation, and the step-by-step mechanism were discussed, together with the mechanism in which only concentration and activity of the metal-catalyst complex are affected by one of the catalytic system components. Moreover, exptl. studies showed that PhOAc was obtained with 78-84% yield within 6 hr by the conversion PhHgOAc-(NaOAc) → PhOAc + Hg in boiling AcOH. The following results were established for the exchange reactions of PhH goAc with PdCl<sub>2</sub>, Pd(OAc)<sub>2</sub>, and Cu(OAc)<sub>2</sub> in glacial AcOH: (1) reactions of electrophilic substitution were markedly faster than the oxidation-reduction heterolysis of Pd and Cu organometallic compds.; (2) biphenyl was formed fast and quant. at low temps. in the presence of PdCl<sub>2</sub>; (3) in the Pd-(OAc)<sub>2</sub>-NaOAc system, PhOAc and biphenyl were formed with about 25% yield; (4) the exchange of PhHgOAc with Cu(OAc)<sub>2</sub> occurred at 60-80°, but phenylcuprio acetate degradation occurred after long heating in boiling acetic acid, and the PhOAc so formed was rapidly mercurated and separated as phenolmercurio acetate chloride. Expts. showed that either transchloro(β-chlorovinyl)mercury or β-chlorovinylcopper were formed in both hydrochlorination and oxychlorination of acetylene as intermediate compds., according to whether HgCl<sub>2</sub>-HCl or CuCl-HCl solns. were used for the reaction. Three mechanisms were identified in such processes when they were carried out in CuCl-CuCl<sub>2</sub> and HgCl<sub>2</sub>-CuCl<sub>2</sub> solns.

L3 ANSWER 30 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1970:110760 CAPLUS  
DN 72:110760  
TI Oxychlorination of mixed hydrocarbons  
IN Berkowitz, Sidney; Meadow, Morton  
PA FMC Corp.  
SO U.S., 3 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3496242	A	19700217	US 1967-664301	19670830

GB 1221730	A	19710210	GB 1968-1221730	19680805
BE 719240	A	19690210	BE 1968-719240	19680808
FR 1578425	A	19690814	FR 1968-1578425	19680814
ES 357257	A1	19700316	ES 1968-357257	19680814
NL 6812339	A	19690304	NL 1968-12339	19680829
JP 48034568	B	19731022	JP 1968-61513	19680829
PRAI US 1967-664301	A	19670830		

AB Processes are described for oxychlorination of CH<sub>4</sub> and C<sub>2</sub> hydrocarbons in the presence of a catalyst consisting of CuCl<sub>2</sub>, KCl, and a chloride of Nd, Ce, Zr, or Pr at a temperature from 350-600° and preferably between 400-500°. Thus, a Cu, K, Nd chloride catalyst was made containing 2.5% of each of the materials. A charge of 200 ml catalyst was placed into a 15/8 in. outer diameter glass reactor 2 feet long, and feed containing CH<sub>4</sub>, C<sub>2</sub>H<sub>4</sub>, Cl, and air in the mol e ratio 0.5:0.5:2.0:6.0 was subjected to oxychlorination in the presence of the catalyst at 435°. The feed rates, equivalent linear flow of 0.25 ft/sec, maintained the catalyst in the fluidized state. The effluent gases were assayed. Approx. 87% of the Cl and 90% of the C was utilized, with 76% of the Cl converted into CHCl<sub>3</sub>, CCl<sub>4</sub>, trichloroethylene, and perchloro-ethylenes. Other examples (5) were given.

L3 ANSWER 31 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1970:78371 CAPLUS  
 DN 72:78371  
 TI Oxychlorination of olefins  
 PA Central Glass Co., Ltd.  
 SO Brit., 4 pp.  
 CODEN: BRXXAA  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1178323		19700121	GB 1967-22210	19670512
PRAI	JP		19660516		

AB Thus, cylindrical carriers were prepared from 33 g molded diatomaceous earth. Each carrier (2-3 mm long) was impregnated with a mixture of CuCl<sub>2</sub> containing 1% by weight Cu, and a condensed phosphate (in an amount of 0.5-3.0 moles/-mole CuCl<sub>2</sub>) and then dried. The catalyst was packed into a glass tube internal diameter 40 mm and heated to 300°. A mixture of 1 part by volume C<sub>2</sub>H<sub>4</sub>, 2 parts HCl gas, and 2.5 vols. air, was passed through the catalyst at a space velocity of 300 hr<sup>-1</sup>. The selectivity for the main product, 1,2-dichloroethane, varied according to the type of phosphate used, and also with the mol. ratio of phosphate to CuCl<sub>2</sub>. The most efficient was NaPO<sub>3</sub> with a ratio of 2.0 when the selectivity was 99.22%.

L3 ANSWER 32 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1970:78367 CAPLUS  
 DN 72:78367  
 TI High purity dichloroalkanes from olefins  
 PA Solvay et Cie.  
 SO Belg., 8 pp.  
 CODEN: BEXXAL  
 DT Patent  
 LA French  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	BE 725636		19690618	BE 1968-725636	19681218
	DE 1961449			DE	
	FR 2026414			FR	
	ZA 6908307		19690000	ZA	

AB Chlorine is added to an olefin in the refluxing corresponding chloroalkane and the product distilled Thus, to a reactor containing ClCH<sub>2</sub>CH<sub>2</sub>Cl and 5.4 g

FeCl<sub>3</sub>/kg solvent at 85°, 20 moles Cl and 20.6 moles H<sub>2</sub>C:CH<sub>2</sub> are fed and the evolving ClCH<sub>2</sub>CH<sub>2</sub>Cl vapor led to a distillation column, as 20 moles ClCH<sub>2</sub>CH<sub>2</sub>Cl formed by oxychlorination and 40 moles recycled untransformed. The ClCH<sub>2</sub>CH<sub>2</sub>Cl obtained is 99.9% pure.

L3 ANSWER 33 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1970:31208 CAPLUS  
 DN 72:31208  
 TI Tri- and tetrachloroethylene  
 IN McGinty, Laurence  
 PA Imperial Chemical Industries Ltd.  
 SO Ger. Offen., 17 pp  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1917041	A	19691023	DE 1969-1917041	19690402
	GB 1208795	A	19701014	GB 1968-15784	19680402
	CA 942770	A1	19740226	CA 1969-46616	19690324
	BE 730836	A	19690930	BE 1969-730836	19690331
	NL 6904931	A	19691006	NL 1969-4931	19690331
	FR 2005401	A5	19691212	FR 1969-10072	19690402
PRAI	GB 1968-15784	A	19680402		

AB The title compds. are prepared by either oxychlorination of C<sub>2</sub>H<sub>4</sub> and chloroethanes or by oxidation of chlorinated ethanes, containing at least 3 Cl atoms, at 250-550° in the presence of a fixed-bed Deacon catalyst and steam under adiabatic conditions. Thus, a vertically disposed Inconel tube (60 cm long and 5 cm wide) was filled with cylindrical pellets (length and diameter 0.32 cm) of Celite 408 (diatomaceous earth having a surface of 2.4 m<sup>2</sup>/g) containing 5% Cu and 2% K as chlorides. CH<sub>2</sub>ClCHCl<sub>2</sub> vapor and O was introduced through sep. lines to give 80% product mixture (mixture A), which was cooled to 300°, compressed, mixed with fresh CH<sub>2</sub>ClCHCl<sub>2</sub> vapor, and recycled. Condensation of the remaining mixture A gave the title compds. and a gas phase, which was recycled. Data from several runs were tabulated. For example, at 470°, with 2.48 moles/hr ClCH<sub>2</sub>CHCl<sub>2</sub> input, the effluent contained 1.83 moles/hr C<sub>2</sub>HCl<sub>3</sub> and 0.25 mole/hr C<sub>2</sub>Cl<sub>4</sub>.

L3 ANSWER 34 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1970:31207 CAPLUS  
 DN 72:31207  
 TI Tri- and tetrachloroethylene  
 IN McGinty, Laurence  
 PA Imperial Chemical Industries Ltd.  
 SO Ger. Offen., 17 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1917042	A	19691023	DE 1969-1917042	19690402
	GB 1256074	A	19711208	GB 1968-15782	19680402
	CA 941845	A1	19740212	CA 1969-46623	19690324
	BE 730834	A	19690930	BE 1969-730834	19690331
	NL 6904930	A	19691006	NL 1969-4930	19690331
	FR 2005400	A5	19691212	FR 1969-10071	19690402
PRAI	GB 1968-15782	A	19680402		

AB The title compds. are produced by oxychlorination of C<sub>2</sub>H<sub>4</sub> and chlorinated ethanes or by oxidation of chloroethanes, bearing at least 3 Cl atoms, at 300-500° in the presence of a Cu catalyst, deposited on low-surface-area SiO<sub>2</sub> or Al<sub>2</sub>O<sub>3</sub>. Thus, C<sub>2</sub>H<sub>4</sub> was passed into a reaction tube, having a length of 70 cm and an inner diameter of 4.4 cm and containing



ml Al<sub>2</sub>O<sub>3</sub> catalyst (surface 23 m<sup>2</sup>/g and particle size 0.053-0.25 mm) containing 2 weight % Cu, 2 weight % K, and 2 weight % "Didym." Air and Cl<sub>2</sub> was introduced through an opening below the catalyst surface. Use of a temperature of 430°, a C<sub>2</sub>H<sub>4</sub>-Cl<sub>2</sub>-air ratio 14.3:27:53 (figs. given in l./hr) and a contact time 9.5 sec, gave a yield of 51 mole % C<sub>2</sub>Cl<sub>4</sub> and 2 9.7 mole % C<sub>2</sub>HCl<sub>3</sub> was obtained.

L3 ANSWER 35 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1969:438323 CAPLUS  
 DN 71:38323  
 TI Oxychlorination of hydrocarbons and chlorinated hydrocarbons  
 PA Wacker-Chemie G.m.b.H.  
 SO Fr., 2 pp.  
 CODEN: FRXXAK  
 DT Patent  
 LA French  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	FR 1533567		19680719	FR 1967-116092	19670728
	DE 1593715			DE	
	GB 1160019			GB	
PRAI	DE		19660729		

AB When the title reaction is performed with HCl and air or O in the presence of CuCl<sub>2</sub>, local overheating and thus formation of higher-chlorinated compds. was avoided by insertion of the CuCl<sub>2</sub> into the crystal lattice of a graphite in a preferred ratio of 25:75 to 60:40 or even with a lower CuCl<sub>2</sub> content. Thus, graphite flakes, thoroughly mixed with 25% of their weight of anhydrous CuCl<sub>2</sub>, were heated for 8 days at 400° in an elec. furnace in presence of a weak Cl stream, yielding a flaky black powder, which was blended 1:1 with γ-Al<sub>2</sub>O<sub>3</sub> and compressed to tablets of 2-5 mm. diameter. A vertical Fe tube 150 cm. long was charged with 650 ml. of this catalyst. A gas mixture of C<sub>2</sub>H<sub>4</sub> 11.2, HCl 21.3, and air 61.6 l. was passed through it while the upper part of the tube was kept at 240° and the lower part at 260°. The escaping gases were condensed to 98% (CH<sub>2</sub>Cl)<sub>2</sub>. The yield based on HCl, was 96.5%. Also prepared were a mixture of CHCl<sub>2</sub>CH<sub>2</sub>Cl and cis-dichloroethylene (I) from CH<sub>2</sub>:CHCl, (CHCl<sub>2</sub>)<sub>2</sub> from I, and a mixture of C<sub>2</sub>HCl<sub>3</sub> and Cl<sub>2</sub>C:CCl<sub>2</sub> from CHCl:CCl<sub>2</sub>.

L3 ANSWER 36 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1969:56909 CAPLUS  
 DN 70:56909  
 TI Oxychlorination of chloro-substituted ethylenes  
 AU Suzuki, Akira; Onda, Takeo; Tomaru, Mikiya  
 CS Kanto Denka Kogyo Co., Japan  
 SO Kogyo Kagaku Zasshi (1967), 70(12), 2400-1  
 CODEN: KGKZA7; ISSN: 0368-5462  
 DT Journal  
 LA Japanese

AB Ethylene and its chloro derivs. were oxychlorinated with HCl and O using a catalyst consisting of CuCl<sub>2</sub> and KCl on activated alumina. When the molar ratio of olefin to O<sub>2</sub> was higher than 2, the rate of reaction (O<sub>2</sub> consumption) was proportional to O<sub>2</sub> concentration. The reactivity of olefins decreased in the following order; CH<sub>2</sub>:CH<sub>2</sub> > CH<sub>2</sub>:CCl<sub>2</sub> .gtorsim. CH<sub>2</sub>:CHCl CHCl:C-Cl<sub>2</sub> > trans-CHCl:CHCl .gtorsim. cis-CHCl:CHCl > CCl<sub>2</sub>:CCl<sub>2</sub>. Reaction products were analyzed by gas chromatog.

L3 ANSWER 37 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1969:37156 CAPLUS  
 DN 70:37156  
 TI Addition of chlorine to olefins and their derivatives on active carbon  
 IN Kino, Satoshi; Kobayashi, Yoshio  
 PA Japan Carbide Industries Co., Inc.  
 SO Jpn. Tokkyo Koho, 7 pp.

CODEN: JAXXAD

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 43008084	B4	19680328	JP	19650616
AB	Cl was added to olefins (I) and their derivs. (II) by introducing I or II, HCl, and O at 200-20° onto C treated with CuCl <sub>2</sub> (III) and (or) FeCl <sub>2</sub> . Thus, active carbon (IV) (Shirasagi C, 6-12 mesh) was dried 2 hrs. at 300°. In 15 parts (by weight) anhydrous III in 200 parts H <sub>2</sub> O was soaked 100 parts IV and dried 2 hrs. at 150°; 100 ml. (60.2 g.) IV so treated was packed in a Pyrex glass tube (inner diameter 11 mm.) and the temperature kept at 210°. Flow rates of ethylene (V), HCl, and air were 20, 40, 50 ml./min., resp. After 90-100 min.; a stationary condition was continued 180 min. Gaseous products were condensed or absorbed. 1,2-Dichloroethane was obtained in 96.2% yield together with traces of unreacted V and CO <sub>2</sub> .				

L3 ANSWER 38 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1969:37155 CAPLUS

DN 70:37155

TI Catalysts for oxychlorination of ethylene

IN Kominami, Naoya; Yamazaki, Yoshiaki; Kawarazaki, Kusuo

PA Asahi Chemical Industry Co., Ltd.

SO Jpn. Tokkyo Koho, 3 pp.

CODEN: JAXXAD

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 43004323	B4	19680216	JP	19650915
AB	MoCl <sub>5</sub> or WCl <sub>6</sub> is used with CuCl <sub>2</sub> , CrCl <sub>3</sub> , AgCl, MnCl <sub>2</sub> , CdCl <sub>2</sub> , or ZnCl <sub>2</sub> for C <sub>2</sub> H <sub>4</sub> oxychlorination at 80-300°. NaCl, KCl, SrCl <sub>2</sub> , or ThCl <sub>4</sub> may be added. Thus, 14:32:20:34 molar C <sub>2</sub> H <sub>4</sub> -HCl- O-N was passed through a catalyst bed of 100 g. granular C containing MoCl <sub>5</sub> 0.032 and CuCl <sub>2</sub> 0.128 mole at 185° and flow rate 1000 hr. <sup>-1</sup> to give 98.2% dichloroethane and 1.0% vinyl chloride with 83.0% C <sub>2</sub> H <sub>4</sub> conversion. Also used was 0.0285: 0.154 WCl <sub>6</sub> -CuCl <sub>2</sub> on SiO <sub>2</sub> ; at 200° and flow rate 1000 hr. <sup>-1</sup> , 10:26:64 C <sub>2</sub> H <sub>4</sub> -HCl-air gave 92% dichloroethane and 3.3% vinyl chloride with 35.8% C <sub>2</sub> H <sub>4</sub> conversion.				

L3 ANSWER 39 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1969:37154 CAPLUS

DN 70:37154

TI Catalysts for oxychlorination of ethylene

IN Kominami, Naoya; Yamazaki, Yoshiaki; Kawarazaki, Kusuo

PA Asahi Chemical Industry Co., Ltd.

SO Jpn. Tokkyo Koho, 4 pp.

CODEN: JAXXAD

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 43004322	B4	19680216	JP	19650915
AB	In oxychlorination of C <sub>2</sub> H <sub>4</sub> at 80-300° with noble metal catalysts, part of the noble metal is replaced by WCl <sub>6</sub> or MoCl <sub>5</sub> with no loss in the catalytic activity. Thus, 14:32:20:34 molar C <sub>2</sub> H <sub>4</sub> -HCl-O-N was passed through a catalyst bed of 100 g. granular C containing PtCl <sub>4</sub> 0.008, MoCl <sub>5</sub> 0.026, and CuCl <sub>2</sub> 0.128 mole at 175° and flow rate 1200 hr. <sup>-1</sup> to give 96.2% dichloroethane and 1.0% vinyl chloride with 90.0% C <sub>2</sub> H <sub>4</sub> conversion. Also used were PtCl <sub>4</sub> -MoCl <sub>5</sub> -CuCl <sub>4</sub> -RuCl <sub>3</sub> -NaCl and Pd-WO <sub>3</sub> -CdCl <sub>2</sub> .				

L3 ANSWER 40 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1969:3153 CAPLUS  
 DN 70:3153  
 TI Progress in multi-component oxidation technology  
 AU Sherwood, Peter W.  
 CS Peter Sherwood Assoc., Inc., New York, NY, USA  
 SO Chemical Processing (London) (1968), 14(3), 4-5; (4), 4-5  
 CODEN: CPROAI; ISSN: 0009-2622  
 DT Journal; General Review  
 LA English  
 AB A review is made of the title process with particular reference to com.  
 preparation of CH<sub>2</sub>:CHCl (I), CH<sub>2</sub>:CHOAc (II), CH<sub>2</sub>:CHCN (III), and MeOCH:CH<sub>2</sub>  
 where olefins have replaced C<sub>2</sub>H<sub>2</sub> as starting materials.  
 Economic evaluations are made for each and various possible routes and  
 problems are discussed.

L3 ANSWER 41 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1968:486243 CAPLUS  
 DN 69:86243  
 TI Oxychlorination of chloroethylenes  
 AU Suzuki, Akira; Onda, Takeo; Tomaru, Mikiya  
 CS Cent. Res. Lab., Kanto Denka Kogyo Co., Ltd., Shibukawa, Japan  
 SO Kogyo Kagaku Zasshi (1967), 70(12), 2400-1  
 CODEN: KGKZA7; ISSN: 0368-5462  
 DT Journal  
 LA Japanese  
 AB Olefins or chlorinated olefins were treated at  
 260-350° with >2 moles O and HCl (HCl-O >4) in the presence of  
 alumina impregnated with CuCl<sub>2</sub>, and the products analyzed by gas  
 chromatog. The reaction rate increased with increasing O supply.  
 Reactivity of olefins was in the following order: H<sub>2</sub>C:CH<sub>2</sub> (I) >  
 H<sub>2</sub>C:CCl<sub>2</sub> (II) ≥ H<sub>2</sub>C:CHCl (III) > ClHC:CCl<sub>2</sub> (IV) > trans-ClHC:CHCl  
 (V) ≥ cis-ClHC:CHCl (VI) > Cl<sub>2</sub>C:CCl<sub>2</sub> (VII). Starting material, %  
 of O consumed, and composition of the product (%) are given: I, 79, 99.2  
 ClCH<sub>2</sub>CH<sub>2</sub>Cl, and 0.8 ClCH<sub>2</sub>CHCl<sub>2</sub> (VIII); II, 74, 29.4 ClCH<sub>2</sub>CCl<sub>3</sub>, 3.6  
 Cl<sub>2</sub>CHCCl<sub>3</sub> (IX), 66 IV, and 1 VII; III, 72, 96.1 VIII, 0.7 Cl<sub>2</sub>CHCHCl<sub>2</sub> (X),  
 1.2 V, and 2 VI; IV, 52, 81 IX and 19 VII; V, 41, 80 X, 1 IX, and 19 IV;  
 VI, 35, 80 X, 1 IX, and 19 IV; VII, 8.5, 100 Cl<sub>3</sub>CCCl<sub>3</sub>.

L3 ANSWER 42 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
 AN 1968:451531 CAPLUS  
 DN 69:51531  
 TI Haloolefins  
 IN Hayes, William B.  
 PA El Paso Products Co.  
 SO Fr., 4 pp.  
 CODEN: FRXXAK  
 DT Patent  
 LA French  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 1497793		19671013	FR 1966-81555	19661025
	DE 1293744			DE	
	GB 1167716			GB	

PRAI US 19660607  
 AB Propane is heated at 540-77° in the presence of FeCl<sub>3</sub> or Fe<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub>,  
 HCl, and O to prepare propylene containing a significant amount of allyl  
 chloride.

The propylene can be recycled to increase the yield of allyl chloride,  
 which is useful as a starting material for preparing allyl alc., glycerol,  
 epichlorohydrin, nylon, etc. Thus, Vycor tubing (1.9 + 103 cm.) was  
 packed with alumina impregnated with FeCl<sub>3</sub>. Propane 0.75, HCl 0.6, and O  
 0.25 g./hr. were passed through the tubing which was heated at  
 540-77°. The conversion of propane was 54%, and the product

comprised propylene, allyl chloride, and 1,5-hexadiene in yields of 73, 11.5, and 1.6 mole %, based on the amount of propane converted.

L3 ANSWER 43 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1968:21505 CAPLUS  
DN 68:21505  
TI Brominated or chlorinated unsaturated hydrocarbons  
IN Smith, Kenneth Beadsmore  
PA Imperial Chemical Industries Ltd.  
SO Ger., 6 pp.  
CODEN: GWXXAW  
DT Patent  
LA German  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1243173		19670629	DE 1964-J25973	19640605
PRAI	GB		19630605		
	GB		19640520		

AB Olefins (2-4 C atoms) are halogenated with HCl or HBr and O in the presence of metal chlorides and rare earth chlorides on a carrier substance, at temps. between 250 and 550°. E.g., 16.9 g. CuCl<sub>2</sub>·2H<sub>2</sub>O and 6.6 g. CeCl<sub>3</sub> are dissolved in 23 ml. H<sub>2</sub>O, 3.1 g. H<sub>2</sub>PtCl<sub>4</sub> (40% Pt by weight) in 15 ml. H<sub>2</sub>O added, and 100 g. activated Al<sub>2</sub>O<sub>3</sub> (Actal A) soaked with this mixture and dried for 18 hrs. at 120°. The catalyst contains by weight: 5% Cu, 1% Pt, and 3% Ce and passes through a 1.68-mm. sieve. Of this catalyst, 1 ml. is diluted with 30 ml. glass powder of the same mesh and introduced into a reaction tube at 350°. A mixture of 2.5l. C<sub>2</sub>H<sub>4</sub>, 5l. dry HCl, 1l. O, and 8.5 l. N per hr. is passed over the catalyst to give after 1 hr.: H<sub>2</sub>C:CHCl 3.0 volume %, H<sub>2</sub>CClCH<sub>2</sub>Cl 3.5 volume %, and CO, CO<sub>2</sub>, O, HCl, C<sub>2</sub>H<sub>4</sub>, N, and H<sub>2</sub>O.

L3 ANSWER 44 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1967:516540 CAPLUS  
DN 67:116540  
TI Synthesis of vicinal dichlorides  
IN Hayes, Charles H.; Caserio, Frederick F., Jr.; Mixer, Robert Y.  
PA Atlantic Richfield Co.  
SO U.S., 5 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3341612		19670912	US 1964-368941	19640520

AB (CH<sub>2</sub>Cl)<sub>2</sub> (I) and CH<sub>2</sub>ClCHClMe (II) were prepared by oxychlorination of the gaseous olefins with HCl and an O-containing gas in the presence of a metal chloride and an organic nitrile solvent at 125-75° and 150-300 psig. Thus, 9.15 g. anhydrous CuCl<sub>2</sub> and 60 ml. MeCN were placed in an aerosol compatibility tube, the tube was flushed with C<sub>2</sub>H<sub>4</sub>, and C<sub>2</sub>H<sub>4</sub> added at 105 psig. After 0.5 hrs. at 154° and 23 hrs. at 153.5-106 psig. the reaction mixture was treated with 200 ml. water and extracted with isopentane to yield 54.3% I. I was also prepared by use of CuCl<sub>2</sub>·2H<sub>2</sub>O or FeCl<sub>3</sub> catalysts and benzonitrile solvents. II was prepared with CuCl<sub>2</sub>·2H<sub>2</sub>O and MeCN.

L3 ANSWER 45 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1966:465152 CAPLUS  
DN 65:65152  
OREF 65:12097e-g  
TI Recent development of vinyl chloride industry and Toyo Soda's achievement  
AU Suda, Kenji  
SO Japan Chem. Quart. (1966), 2(3), 48-53  
DT Journal

LA English

AB The oxychlorination method of producing vinyl chloride (I) is described. The process consists of producing 1,2-dichloroethane (II) from C<sub>2</sub>H<sub>4</sub> and Cl and thermal cracking of II to produce I and HCl. The HCl is oxychlorinated by treatment with C<sub>2</sub>H<sub>4</sub> and air to also yield I. The conventional chlorination is carried out in either the liquid or gas phase by feeding Cl and C<sub>2</sub>H<sub>4</sub> into the chlorinator, which contains liquid II and the catalyst. II is synthesized by ionic addition. Neutralization, scrubbing, and distillation yield purified II. Oxychlorination is carried out in a fixed-bed or fluidized-bed reactor in the presence of a catalyst by passing C<sub>2</sub>H<sub>4</sub> and HCl vapor and air through the reactor. Both high- and low-pressure cracking are used to produce I. Anhydrous HCl is separated and recycled. This method is applicable when C<sub>2</sub>H<sub>4</sub> and Cl; HCl, Cl, and HCl; or C<sub>2</sub>H<sub>4</sub> only are available. Advantages are that cheaper C<sub>2</sub>H<sub>4</sub> is used instead of C<sub>2</sub>H<sub>2</sub>, HCl replaces Cl, air is used as the oxidizing agent instead of O, and the oxychlorination and cracking equipment are compact and can be economically operated on a small scale.

L3 ANSWER 46 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1965:480157 CAPLUS

DN 63:80157

OREF 63:14700g-h,14701a-e

TI Alkenes and chlorinated alkanes

PA B. F. Goodrich Co.

SO 21 pp.

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	NL 295468		19650506	NL	19630718
PRAI	NL		19630718		

GI For diagram(s), see printed CA Issue.

AB Hydrocarbons are subjected to an oxochlorination reaction, using an Fe phosphate catalyst, to give alkenes and chlorinated hydrocarbons. A mixture of O, or air, and HCl and the hydrocarbon is contacted at 300-650° with the catalyst. Usually 5 vols. air are used per volume HCl; the mole ratios of hydrocarbon-O is between 2:1 and 6:1, and the HCl-O ratio between 1:1 and 3:1. Temps. of 500-600° give principally the alkene; temps. of 300-500°, the chlorinated products. The space velocity of the gases, expressed as volume starting gas per volume catalyst per hr. is 300-600. The catalyst is an Fe salt of a phosphorus anion, which contains only P and O; other metals of Groups I-IV can be present as promoters and (or) activators. The catalyst can be used as small discrete particles, or can be adsorbed on an inert carrier such as silica. Thus, a catalyst is prepared by dissolving 11.4 g. FeCl<sub>3</sub> and 10 g. NiCl<sub>2</sub>·6H<sub>2</sub>O in H<sub>2</sub>O, slurring 250 g. colloidal technical silica (containing 30% SiO<sub>2</sub>) in the solution, and adding 8.4 g. 85% H<sub>3</sub>PO<sub>4</sub>. The mixture is heated at 120° till a hard gel is obtained, which is dried at 500°. The lumps are crushed and sieved; those passing at 2.1-0.85 mm. mesh are used. A reactor, provided with gas inlet and outlet devices and a thermocouple, consisting of a Vycor glass tube of 30-cm. length and a capacity of 60 ml., is filled with 50 ml. of the catalyst, and a molar ratio of C<sub>2</sub>H<sub>6</sub>, HCl, and O of 4:2:1 is passed at 600° at a space velocity of 480. A 38% conversion was obtained, and the product consists of 91% C<sub>2</sub>H<sub>4</sub>, 3.6% CO, and 0.6% CO<sub>2</sub>. Changing the reaction conditions gives the tabulated (1st table) results (the catalyst was absorbed on a SiO<sub>2</sub> carrier if not otherwise stated). Using pyrophosphates, the tabulated results (2nd table) were obtained (catalyst adsorbed on silica if not otherwise stated). Ratio C<sub>2</sub>H<sub>6</sub>-HCl-O, Space velocity, Temperature, Catalyst, (mole-mole), (anion), Conversion %, % yield, C<sub>2</sub>H<sub>4</sub>, EtCl; 5:2:1, 470, 500°, Fe-Ce 3:1, (P<sub>2</sub>O<sub>7</sub>), 25.44, 82.36, 6.93; 10:2:1, 470, 500°, Fe-Ce 3:1, (P<sub>2</sub>O<sub>7</sub>), 14.97, 96.12, 1.67; 5:2:1, 600, 600°, Fe<sub>4</sub>(P<sub>2</sub>O<sub>7</sub>)<sub>3</sub>, (on Al<sub>2</sub>O<sub>3</sub>), 31.73, 92.29, 0.06; 5:2:1, 576, 590°, Fe-Ce 4:1, (PO<sub>4</sub>), 30.46, 88.61, 3.34; 4.2:2:1, 515, 590°, Fe-Ce 4:1, (PO<sub>4</sub>), 35.07,

87.4, 2.65; 5:2:1, 576, 580°, Fe-Co 3:1, (PO4), 32.55, 85.35, 4.18; 5:2:1, 576, 585°, Fe-Mn 1:1, (PO4), 32.03, 82.02, 6.60; 5:2:1, 576, 530°, Fe-Bi 1:1, (PO4), 28.03, 86.07, 6.24; 5:2:1, 576, 590°, Fe-Mg 1:1, (PO4), 26.06, 86.41, 7.83; 5:2:1, 576, 600°, Fe-Cd 1:1, (PO4), 24.42, 86.57, 4.01; 5:2:1, 576, 550°, Fe-Co-Ni-Cr-Mn-Cu 1:1:1:1:1:1, (PO4), 33.98, 89.22, 3.21; 5:2:1, 576, 550°, FePO4, 31.73, 92.29, 0.06; 6:2:1, 386, 500°, Fe-Ca 3:1, (PO4), 21.4, 86.9, 0.9; 6:2:1.5, 407, 600°, Fe-Ca 3:1, (PO4), 32, 88.3, trace; 6:2:1, 386, 450°, Fe-Mg 3:1, (PO4), 20.4, 84.9, 1.0; 6:2:1, 386, 500°, Fe-Mg 3:1, (PO4), 22.3, 89.9, 0.6; 6:2:1, 386, 450°, Fe-Ba 3:1, (PO4), 24.0, 90.0, 0.5; 6:2:1.5, 407, 500°, Fe-Ba 3:1, (PO4), 33.7, 86.8, 0.2; 4:2:1, 480, 600°, Fe-Ni 1:1, (PO4), 42, 92, 0.1; 4:2:1, 490, 600°, Fe-Pb 1:1, (PO4), 43, 90, 0.1; 4:2:1, 420, 600°, Fe-Sn 1:1, (PO4), 41, 87, 2.6; 3:2:1, 470, 600°, Fe-Ni-Cr-Pb-Cu 1:1:1:1:0.13, (PO4); 53, 93, 0.3; 6:2:1, 430, 600°, Same, 28, 96, 0.2; 2.5:0.6:1, 740, 640°, Same, 66, 86, 1.4; 6:2:1, 520, 430°, Fe-Cu 1:1, (P2O7), 26, 5.1, 86; 6:2:1, 440, 475°, Fe-Cu 1:1, (P2O7), 28, 55, 39; 4:2:1, 460, 550°, Fe-Ni 1:1, (P2O7), 37, 86, 3.3; 5:2:1, 420, 600°, Fe-Ni 1:1, (P2O7), 27, 93, 2.4; 4:2:1, 480, 575°, Fe-Ni 1:1, (P2O7) on Al2O3, 37, 91, 1.0; 4:2:1, 420, 600°, FeCl3-H3PO4, 1:1, 44, 92, 0; 4:2:1, 630, 600°, FeCl3-H3PO4, 2:3, 45, 92, 0; 4:2:1, 340, 600°, FeCl3-H3PO4, 1:3, 47, 94, 0; Ratio C2H6 HCl-O, Space velocity, Temperature, Catalyst (mole-mole), Conversion %, C2H4, Yield %, EtCl, C2H4Cl2; 6:2:1, 340, 350°, Cu-Fe 1:10, 6.1, 22.7, 59.1, 12.8; 6:2:1, 340, 400°, Cu-Fe 1:10, 16.5, 60.1, 8.7, 12.7; 10:2:1, 448, 385°, Cu-Fe 3:10, 7.3, 13.3, 56.6, 25.2; 10:2:1, 448, 500°, Cu-Fe 3:10, 14.7, 91.5, 0.6, 0.3; 6:2:1, 360, 475°, Fe-Cu 1:1 (pumice), 13.9, 10.4, 84.3, 1.8; 6:2:1, 386, 375°, Fe-Cu 1:1, 13.9, 0.2, 93.1, 5.7; 6:2:1, 540, 510°, Fe-Cu 1:1, 32.5, 30.7, 59.3, 1.2;

L3 ANSWER 47 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1965:438650 CAPLUS

DN 63:38650

OREF 63:6858e-h

TI 1,4-Dienes

IN Kealy, Thomas J.

PA E. I. du Pont de Nemours & Co.

SO 40 pp.

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 1388305		19650205	FR 1964-966844	19640310
PRAI	US		19630311		

AB R2CH2CH2CR:CR3CR4:CHR1 (I) are produced by a new catalytic reaction between R2CH:CH2 (II) and CHR:CR3CR4:CHR1 (III). The catalyst used is obtained by combining (a) at least 2 moles of an organometallic derivative RMX<sub>n</sub>, where R = alkyl, aryl, or aralkyl, M = Al, Zn, Cd, or Mg, n is equal to the valence of the minus one, X = alkyl, aryl, aralkyl, Cl, or Br; with (b) 1 mole of at least 1 Ni complex formed with at least one ligand of P3+ containing 1 free valence; this complex can be a halide, a nitrate, or a carbonyl. To avoid deactivation of the catalyst, the reaction product must not contain an allylic halide. Thus, 66 g. 1,3-butadiene is introduced by distillation into an autoclave containing a stirred mixture of 0.534 g.

Ni bis(tributylphosphine) dichloride complex in 1 l. tetrachloroethylene; while the temperature is raised from 0°, ethylene is introduced. When the reaction mixture is at 68°/6.9 kg./cm.2, the catalytic reaction is initiated by injecting 1.3 cc. iso-Bu2AlCl in 3 cc. tetrachloroethylene. The ethylene inlet is closed a min. later at 72°/7.1 kg./cm.2 and the reaction flask cooled to give 57 g. fraction, b. 52-74°, which contains 64% 1,4-hexadiene, a monomer

of for the preparation of vulcanizable elastomers. Also were prepared a mixture

3-ethyl-1,4-hexadiene and 3-methyl-1,4-heptadiene, b. 108-9.4°, from 2,4-hexadiene, 3-methyl-1,4-hexadiene, b. 83-4°, n25D 1.4135, from 1,3-pentadiene, 4-methyl-1,4-hexadiene, b. 91-3°, n25D 1.4232, from isoprene, 2-methyl-1,4-hexadiene, b. 91-2°, n25D 1.4203, from 1,3-butadiene and propylene, 2-butyl-1,4-hexadiene, b18 58-61°, n25D 1.4392, from 1,3-butadiene and 1-hexene, 2,4-dimethyl-1,4-hexadiene, b104 72-3°, from propylene and isoprene, 3-vinylcyclohexene, b73-74 58-61°, n25D 1.4647-1.4648, from ethylene and 1,3-cyclohexadiene, 3-vinylcyclooctene, b12-13 59-60.3°, from 1,3-cyclooctadiene and ethylene, 4-chloro-1,4-hexadiene, b. 114-15°, from 2-chloro-1,3-butadiene and ethylene, and 4,5-dichloro-1,4-hexadiene, b26 61-77°, from 2,3-dichloro-1,3-butadiene.

L3 ANSWER 48 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1965:438647 CAPLUS  
DN 63:38647  
OREF 63:6858a-b  
TI Oxychlorination of lower alkanes  
IN Carroll, Richard T.; De Witt, Elmer J.; Trapasso, Louis E.  
PA B.F. Goodrich Co.  
SO 4 pp.  
DT Patent  
LA Unavailable  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 3173962		19650316	US 1962-203709	19620620
AB	Hydrocarbons were converted to olefins and halogenated products by oxychlorination with a mixture of HCl and O at elevated temps. in the presence of an iron-copper pyrophosphate catalyst. The catalyst was prepared by adding to a solution of 11.4 g. FeCl <sub>3</sub> , 10 g. NiCl <sub>2</sub> ·6H <sub>2</sub> O in H <sub>2</sub> O 250 g. colloidal silica containing 30% silica and then 8.4 g. of 85% H <sub>3</sub> PO <sub>4</sub> . The mixture was heated at 120° until a hard gel resulted. This was dried at 500°, sieved (8-18 mesh), and heated at 600° under N or air prior to use. The dried gases were passed into the reaction chamber containing the catalyst at 5 psig. In a typical run, a gaseous mixture having a mole ratio of 6:2:1 of C <sub>2</sub> H <sub>5</sub> : HCl:O was heated to 475° and passed over the above catalyst at a space velocity of 440 to yield a 28% conversion of a gaseous mixture containing ethylene 55, EtCl 39, CO 2.7, and				
CO2	0.7. Cu in the catalyst may be substituted by Ni, Pb, Sn, Cr, Co, Mn, Mg, or Cd and phosphates may be used in place of pyrophosphates.				

L3 ANSWER 49 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1965:429819 CAPLUS  
DN 63:29819  
OREF 63:5267g-h  
TI Oxychlorination of olefins  
PA Dynamit-Nobel A.-G.  
SO 8 pp.  
DT Patent  
LA Unavailable  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	NL 6411498		19650405	NL 1964-11498	19641002
PRAI	DE		19631004		
AB	A heat-exchange system is described by which the temperature of the title reaction, operating at <280° in a fluidized bed of a γ- or a η-alumina supported CuCl <sub>2</sub> catalyst, is controlled by using the evolved heat for the production of an automatically regulated amount of steam. In an example, C <sub>2</sub> H <sub>4</sub> 10, HCl 20, and air 30 m. <sup>3</sup> /hr. were fed to a fluidized bed of 30 l. γ-Al <sub>2</sub> O <sub>3</sub> -(grain diameter 0.75-1.0 mm.) supported catalyst				

containing 9.3% Cu maintained at 270-80° to yield 96% C<sub>2</sub>H<sub>4</sub>Cl<sub>2</sub>. In these conditions 40 kg./hr. steam were produced by the heat exchanger.

L3 ANSWER 50 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1965:78473 CAPLUS

DN 62:78473

OREF 62:13904a-b

TI Oxychlorination catalysts

IN Millidge, Alfred F.; Waight, Patricia E.

PA Distillers Co. Ltd.

SO 8 pp.

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 84193		19641204	FR 1963-945454	19630823
PRAI	US		19620901		

AB Addition 84,193, Addition to Fr. 1,321,708 (See Belg. 616,762, CA 58, 11216e) Olefins are treated with mixts. of HCl and O in the presence of a catalyst containing 0.1-5 weight % Cu, 0.2-10 weight % alkaline earth ion, and Fe or a

rare earth meal on alumina. Thus, activated alumina 42 was impregnated with a solution of CuCl<sub>2</sub>·2H<sub>2</sub>O 5.36, MgCl<sub>2</sub>·6H<sub>2</sub>O 4.6, and CeCl<sub>3</sub> 3.25 and heated at 110° to give a catalyst containing 4% Cu, 4% Ce, and 1.1% Mg; and a mixture of ethylene, HCl, and air was passed over the prepared catalyst 36 parts (300°), at 2450, 4655, and 5922 volume parts/h., resp., to give 94.7% conversion (of HCl).

L3 ANSWER 51 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1965:43434 CAPLUS

DN 62:43434

OREF 62:7623f

TI New route to vinyl chloride

AU Edwards, Edwin F.; Weaver, Theodore

CS Fluor Corp., Ltd., Los Angeles, CA

SO Chemical Engineering Progress (1965), 61(1), 21-6

CODEN: CEPRA8; ISSN: 0360-7275

DT Journal

LA English

AB A review of the oxychlorination of ethylene with HCl in the presence of O to give vinyl chloride.

L3 ANSWER 52 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1964:491996 CAPLUS

DN 61:91996

OREF 61:15974a-b

TI Oxychlorination of olefins

IN Millidge, Alfred F.; Waight, Patricia E.

PA Distillers Co. Ltd.

SO 3 pp.; Addn. to Brit. 932,130 (Belg. 616,762, CA 58, 11216e)

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 971996		19641007	GB 1962-33642	19620901
	BE 636856			BE	
	NL 297252			NL	

PRAI GB 19620901

AB An improvement in or modification of the oxychlorination of ethylene as described in the earlier patent (loc. cit.) was given.

L3 ANSWER 53 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1964:454195 CAPLUS



DN 61:54195  
OREF 61:9343e-f  
TI Catalysts for oxychlorination of hydrocarbons  
IN Millidge, Alfred F.; Capp, Clifford W.; Waight, Patricia E.  
PA Distillers Co. Ltd.  
SO 15 pp.  
DT Patent  
LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 1360473		19640508	FR 1963-937023	19630605
	BE 633892			BE	
	GB 969937			GB	
	NL 294391			NL	

PRAI GB 19620623

AB Complex catalysts containing Cu, an alkali metal and (or) an alkaline earth metal,

Zr, U, Th, and (or) Ti are effective oxychlorinating agents for hydrocarbons when deposited on a porous carrier. For example, 42 g. 3-mm. Al<sub>2</sub>O<sub>3</sub> granules was preheated for 24 hrs. at 1060°, then impregnated with an aqueous solution of 4.96 g. CuCl<sub>2</sub>·2H<sub>2</sub>O, 0.972 g. KCl, and 3.9 g. UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>·6H<sub>2</sub>O. The mixture is evaporated to dryness and heating continued until all the NO<sub>3</sub>-- has decomposed. The carrier then contains Cu 4, U 4, and K 1.1%. C<sub>2</sub>H<sub>4</sub> 2457, HCl 4660 and air 5900 parts/hr. are mixed and fed at 325° over 36 parts by volume of this catalyst in a fixed-bed reactor. Conversion is 95.7% based on C<sub>2</sub>H<sub>4</sub>; losses are 0.6%.

L3 ANSWER 54 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1963:5960 CAPLUS

DN 58:5960

OREF 58:964d

TI Energetic criteria for oxychlorination catalysts

AU Allen, J. A.

SO Journal of Applied Chemistry (1962), 12, 406-12

CODEN: JACHAU; ISSN: 0021-8871

DT Journal

LA Unavailable

AB The discussion is mainly concerned with the standard free-energy changes as a function of temperature, associated with the reactions of metal chlorides with

O, and of metal oxychlorides and oxides with HCl. By use of the known catalytic activity of the CuCl<sub>2</sub>/CuO catalyst pair as a guide, the possible value of other bivalent, univalent, trivalent, and quadrivalent chloride/oxide pairs alone and in combination is assessed energetically. The results explain some technological facts concerning active catalysts given in the patent literature.

L3 ANSWER 55 OF 55 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1961:17522 CAPLUS

DN 55:17522

OREF 55:3429f-g

TI Controlling alkane oxychlorination

IN Milam, Joseph E.; Makris, Wm. E.; McGreevy, Robert E.

PA Columbia-Southern Chemical Corp.

DT Patent

LA Unavailable

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2952714		19600913	US 1958-766678	19581013
	DE 1079020			DE	
	DE 1137424			DE	
	DE 1142161			DE	
	GB 853754			GB	

AB When a gaseous mixture of an aliphatic hydrocarbon containing 1-4 C atoms, an O-containing gas, and a chlorinating agent, e.g., HCl or Cl<sub>2</sub>, were passed in contact with a metal halide catalyst, the reaction and efficiency of the process was controlled by adjusting the amts. of gases fed to the catalyst bed to have 0.02-5% free O in the product gas stream. Examples were given of the preparation of chloromethanes from CH<sub>4</sub>, air, and HCl or Cl<sub>2</sub> with a CuCl<sub>2</sub>-KCl catalyst on Celite.

=> d L5 1-10 bib abs

L5 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:625809 CAPLUS

DN 145:292639

TI Aerobic oxychlorination of phenols catalyzed by copper(II) chloride

AU Menini, Luciano; Gusevskaya, Elena V.

CS Departamento de Quimica, Universidade Federal de Minas Gerais, Belo Horizonte, MG, 31270-901, Brazil

SO Applied Catalysis, A: General (2006), 309(1), 122-128

CODEN: ACAGE4; ISSN: 0926-860X

PB Elsevier B.V.

DT Journal

LA English

AB Oxychlorination of phenol and electron-rich phenolic compds. catalyzed by CuCl<sub>2</sub> under mild conditions has been developed. Chloride ions are used as halogenating agents and dioxygen as a final oxidant. The catalyst shows not only high regioselectivity for para- or ortho isomers but also a remarkable chemoselectivity for monochlorination, with no products of the oxidation of phenols being formed in detectable amts. Non-phenolic aroms. and phenols with electron withdrawing substituents undergo no transformation at all under similar conditions. A free radical mechanism is suggested, which involves one-electron oxidation of phenol by CuCl<sub>2</sub> to the corresponding phenoxy radical followed by a rapid reaction of the tautomeric cyclohexadienyl radical with CuCl<sub>2</sub> resulting in chlorinated product and CuCl. Re-oxidation of CuCl by dioxygen completes a catalytic cycle. This simple, low cost and selective method might be applied for the synthesis of chlorophenols, which are widely used in pharmaceutical, agricultural and dye industries.

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:182817 CAPLUS

DN 140:237528

TI Catalytic oxychlorination of olefins and aromatics using a fluidized-bed reactor method

IN Voigt, Andreas; Winter, Franz; Kozek, Martin

PA Austria Wirtschaftsservice Gesellschaft m.b.H., Austria

SO PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004018395	A1	20040304	WO 2003-EP8846	20030808
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,			

FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,  
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 10238811	A1	20040318	DE 2002-10238811	20020823
DE 10238811	B4	20060413		
AU 2003260397	A1	20040311	AU 2003-260397	20030808
EP 1530557	A1	20050518	EP 2003-792285	20030808

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

US 2006149102	A1	20060706	US 2005-525419	20050909
PRAI DE 2002-10238811	A	20020823		
WO 2003-EP8846	W	20030808		

OS CASREACT 140:237528

AB A method for continuous oxychlorination of olefins and  
 aroms. (e.g., the conversion of ethylene into 1,2-dichloroethane)  
 is described which comprises reacting olefins and aroms. as  
 constituents (a) with oxygen and HCl(g) constituents (b) in the presence  
 of a copper-salt catalyst (e.g., CuCl<sub>2</sub>-CuCl-CuO mixture) in a reactor. The  
 constituents (a) and (b) are sep. introduced in the reaction zones and in  
 the regeneration zones of the reactor. The reaction zone comprises a  
 higher catalyst concentration in oxidized form when the solid matter is  
 introduced than when it is extracted. The regeneration zone contains a higher  
 catalyst concentration in reduced form when the solid matter is introduced than  
 when it is extracted. The constituents (a) are set in the reaction zones and  
 the constituents (b) in the regeneration zones; process flow diagrams are  
 presented.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:199590 CAPLUS

DN 138:373229

TI Formation of Chlorinated Aromatics by Reactions of Cl•, Cl<sub>2</sub>,  
 and HCl with Benzene in the Cool-Down Zone of a Combustor

AU Procaccini, Carlo; Bozzelli, Joseph W.; Longwell, John P.; Sarofim, Adel  
 F.; Smith, Kenneth A.

CS Department of Chemical Engineering, Massachusetts Institute of Technology,  
 Cambridge, MA, 02139, USA

SO Environmental Science and Technology (2003), 37(8), 1684-1689

CODEN: ESTHAG; ISSN: 0013-936X

PB American Chemical Society

DT Journal

LA English

AB Conversion of benzene to chlorobenzenes and monochlorophenols by reaction  
 with chlorine radicals (Cl•) in the cool-down zone of a plug-flow  
 combustor has been studied, and a mechanistic anal. of the initial steps  
 of the oxychlorination process is proposed. Superequil. concns.  
 of Cl• are formed during combustion of chlorocarbon species and  
 persist at significant concentration levels even after a substantial reduction  
 in the

flue gas temperature (T = 500-700°). At these temps., Cl• attack on  
 benzene present in trace concns. [initial benzene concentration of 300 ppm by  
 volume (ppmv) or 1080 ppmv were used for the expts.] in the post-flame gas  
 is shown to result in stable chlorinated products (chlorobenzenes and  
 chlorophenols) and loss of benzene. These results suggest that Cl•  
 attack on trace level aroms. and possibly other organic species may  
 be the initial step in the formation of a broad class of chlorinated and  
 oxychlorinated pollutants in the post combustion zone.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:157120 CAPLUS

DN 136:202876

TI Bimetallic supported platinum-tin naphtha reforming catalysts with strong  
 Mossbauer interaction of tin with platinum

IN Le Peltier, Fabienne; Didillon, Blaise; Jumas, Jean-Claude;  
 Olivier-Fourcade, Josette  
 PA Institut Francais du Petrole, Fr.  
 SO Eur. Pat. Appl., 13 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1181978	A1	20020227	EP 2001-402167	20010814
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	FR 2813209	A1	20020301	FR 2000-10878	20000823
	FR 2813209	B1	20021129		
	CA 2355483	A1	20020223	CA 2001-2355483	20010820
	US 2002045544	A1	20020418	US 2001-934656	20010823
	US 6605566	B2	20030812		
	JP 2002119859	A	20020423	JP 2001-252193	20010823
PRAI	FR 2000-10878	A	20000823		

AB A supported bimetallic reforming catalysts consists of a Group VIII metal, preferably platinum, and tin, in which the tin component has a strong interaction in the reduced state with the Group VIII metal. The tin component contains >10 weight% of zero-valent metal (oxidation state 0) and present a Mossbauer isomer displacement of 0.80-2.60 mm/s (compared to BaSnO3) and a quadrupolar. Other components in the catalyst can include a metalloid, an alkali metal or an alkaline earth metal, alumina (as the support), and a halide (preferably present during an oxychlorination pretreatment step). The catalyst is active in reforming of naphthenic and paraffinic feedstocks to produce aromatic hydrocarbons, either in gasoline manufacture or for manufacture of aroms.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:703430 CAPLUS

DN 129:291789

TI Process and staged combustion apparatus for regenerating a catalyst for reforming or for aromatics production in moving bed

IN Brunet, Francois-xavier; Bromet, Emmanuelle; Deves, Jean-marie

PA Institut Francais Du Petrole, Fr.

SO Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DT Patent

LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 872277	A1	19981021	EP 1998-400926	19980414
	EP 872277	B1	20030827		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	FR 2761907	A1	19981016	FR 1997-4663	19970414
	FR 2761907	B1	19990514		
	CA 2232529	A1	19981014	CA 1998-2232529	19980409
	RU 2192925	C2	20021120	RU 1998-107578	19980413
	JP 10296094	A	19981110	JP 1998-102666	19980414
	CN 1202395	A	19981223	CN 1998-109245	19980414
	US 6103652	A	20000815	US 1998-59292	19980414
	ES 2206861	T3	20040516	ES 1998-400926	19980414
	US 6689331	B1	20040210	US 2000-562754	20000502
PRAI	FR 1997-4663	A	19970414		
	US 1998-59292	A3	19980414		

AB Reforming catalysts or catalysts for production of aromatic hydrocarbons are regenerated by staged combustion at 350-600°C in a moving (or

falling) bed with treatment of the catalyst in two zones. Oxygen-containing gas is fed to each zone, with gas recirculation. The catalysts comprise a supported noble metal and a halogen, e.g., Pt on a chlorinated alumina containing Sn or Re promoters. The process favors the diffusion of oxygen into the pores for decoking, producing CO<sub>2</sub> and H<sub>2</sub>O. Axial reaction zones are provided for oxychlorination and calcination.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:622180 CAPLUS

DN 127:292924

TI Oxyhalogenation of aromatics over copper phthalocyanines encapsulated in zeolites

AU Raja, Robert; Ratnasamy, Paul

CS National Chemical Laboratory, Pune, 411 008, India

SO Journal of Catalysis (1997), 170(2), 244-253

CODEN: JCTLA5; ISSN: 0021-9517

PB Academic

DT Journal

LA English

AB The oxychlorination and oxybromination, under near-ambient conditions, of benzene, toluene, phenol, aniline, anisole, and resorcinol, using as catalysts the phthalocyanines of Cu, Fe, and Co encapsulated in zeolites X, Y, and L, are reported. Both H<sub>2</sub>O<sub>2</sub> and O<sub>2</sub> have been used as oxidants. HCl and alkali chlorides/bromides have been used as sources of halogens. The metal phthalocyanines wherein the aromatic rings are substituted by -Cl or -NO<sub>2</sub> groups are more active. There is a dramatic increase in the turnover frequencies for substrate conversion when the complexes are encapsulated in the cavities of the zeolites X, Y, or L. The oxyhalogenation of both the aromatic nucleus and the alkyl side chains occur. Oxidation of the aromatic ring (to phenols or cresols, for example)

does

not occur. Alkyl side chains, however, are oxidized by the oxidant H<sub>2</sub>O<sub>2</sub> or O<sub>2</sub> to alcs., ketones, and acids. The performance of these novel catalyst systems as solid oxyhalogenation catalysts in utilizing O<sub>2</sub> and halide ions in the manufacture of halogenated aroms. holds promise in the organic chems. industry.

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN

AN 1986:409055 CAPLUS

DN 105:9055

TI Reforming catalyst for producing C<sub>8</sub> aromatics

IN Svajgl, Oldrich; Rosenthal, Jakub

PA Czech.

SO Czech., 4 pp.

CODEN: CZXXA9

DT Patent

LA Czech

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CS 223028	B1	19830826	CS 1981-5862	19810803
PRAI	CS 1981-5862		19810803		

AB An Al<sub>2</sub>O<sub>3</sub>-supported PtRe reforming catalyst was prepared by a process involving multistep activation which provides for a uniform and stable Pt-Re distribution and extended service periods. Thus, γ-Al<sub>2</sub>O<sub>3</sub> containing 0.15% TiO<sub>2</sub> and 0.7% Cl was peptized with AcOH, extruded, the product was dried, calcined at 550°, and treated with aqueous H<sub>2</sub>PtCl<sub>6</sub> and NH<sub>4</sub>ReO<sub>4</sub> solns. to give 0.25% Pt and 0.25% Re content. After drying the catalyst was activated in 5 consecutive steps comprising double reduction, oxychlorination, deoxidn., and sulfurization to 0.05% S content. In the conversion of a petroleum cut b. 110-50°, containing 20%

naphthenes, 70% alkenes, and 10% aroms. to concs. containing 34-35% aroms., the above catalyst gave 2.5 times higher stability, lower conversion temperature (by 3°), and longer service (3 yr) than a com. reforming catalyst containing 0.4% Pt or  $\gamma$ -Al<sub>2</sub>O<sub>3</sub>.

L5 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1984:517562 CAPLUS  
DN 101:117562  
TI Fixed bed catalyst for oxychlorination  
IN Convers, Ronald J.; Owens, Robert M.  
PA Conoco, Inc., USA  
SO U.S., 11 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4460699	A	19840717	US 1982-405133	19820804
PRAI	US 1982-405133		19820804		
OS	MARPAT 101:117562				

AB A fixed bed catalyst is described for the oxychlorination of ethene,  $\alpha$ -olefins, and aroms. This catalyst has an impeded center which excludes reactants, or prevents products from forming in the interior of the catalyst. The impeded center may be made inaccessible or it may be inert to reaction. Thin layers of high sp. surface area carrier material cover the outer surface of the impeded center. An agent capable of catalyzing oxychlorination reactions is added to the layered catalytic carrier material.

L5 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1977:108897 CAPLUS  
DN 86:108897  
TI Results of testing polymetallic catalysts on reforming apparatus  
AU Makhov, A. F.; Smirnov, N. P.; Telyashev, G. G.; Risov, B. Ya.; Mamaeva, K. N.; Shekunov, V. M.; Aksarin, M. S.  
CS USSR  
SO Neftepererabotka i Neftekhimiya (Moscow, Russian Federation) (1976), (7), 25-6  
CODEN: NNNSAF; ISSN: 0233-5727  
DT Journal  
LA Russian  
AB The polymetallic catalysts KR 104A [61970-34-1] and KR 101 [61970-33-0] were efficiently regenerated. Their activity and selectivity increased after each regeneration and oxychlorination. A wide gasoline fraction b. 85-180° processed on KR 104A gave 82 weight% catalyzate with octane number 95. A narrow fraction b. 90-120° processed on KR 104A and KR 101 gave catalyzate with 44-51% aroms., i.e. 4-9% more than on the catalyst AP-56.

L5 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2007 ACS on STN  
AN 1974:132930 CAPLUS  
DN 80:132930  
TI Liquid phase of oxychlorination of aromatic compounds  
AU Selwitz, C. M.; Notaro, V. A.  
CS Gulf Res. and Dev. Co., Pittsburgh, PA, USA  
SO Preprints - American Chemical Society, Division of Petroleum Chemistry (1972), 17(4), E37-E46  
CODEN: ACPCAT; ISSN: 0569-3799  
DT Journal  
LA English  
AB A wide range of aromatic hydrocarbons and halogenated aromatic hydrocarbons can be chlorinated in the liquid phase with HCl and O through the use of HNO<sub>3</sub> as catalyst. Reaction proceeds at tempts. as low as 25° with dilute aqueous HCL in high conversion and efficiency, and can often be controlled, by the

selection of reaction conditions, to add specifically 1, 2 or more Cl.  
The reaction is catalyzed by Pd, Cu, H2O and strong acids. The mechanism  
has been elucidated and it appears to go via initial  $\pi$  complex  
formation between the aromatics and protonated NO2Cl.

=>

---Logging off of STN---

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Executing the logoff script...

=> LOG Y

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	191.39	191.60
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-50.70	-50.70

STN INTERNATIONAL LOGOFF AT 16:44:45 ON 01 MAR 2007